The Rise of Covenant Lite Bond Contracting that Excludes Accounting Covenants

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Abstract

We investigate the trading and yield effects of covenant-lite (cov-lite) high-yield bond contracts, which have a restricted (lite) set of covenants. The excluded covenants often are those that use accounting performance measures. Although much research has focused on the potential benefits of accounting as a basis for debt contracting, little is known about settings where it may be optimal to exclude accounting performance statistics from public debt contracts. We find that cov-lite high-yield bonds have a higher trading turnover and lower yield spreads. Our findings provide empirical support for theory which predicts, for optimal bond covenant design, that a trade-off between improving trading ease versus enhanced investor protection needs to be managed. These results enhance our understanding of the limits of accounting's role in (bond) contracting design.

Keywords: covenants, debt, risk, turnover, trading volume, control rights.

JEL Codes: M41, D86, G12

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1. Introduction

Accounting constructs can be of assistance when parties write financial contracts in debt markets (Armstrong, Guay, and Weber 2010). Although the potential benefits of debt contracting on accounting have been extensively explored, scant research investigates the effects of removing accounting covenants from debt contracts. This is the focus of the present study. This issue is particularly pertinent given substantial growth in the use of debt contracts with a restricted set of covenants (so called *covenant light* or *cov-lite* contracts) as a result of historically low yields and fundamental changes in trading platforms for debt instruments.

We study the capital market effects of removing accounting-based covenants in high-yield bond contracts. Covenants impose restrictions to the company, such as the ability to pay shareholder dividends or taking on more debt. Covenant protections are typically extensive for high-yield bonds because of their high risk of default. However, when high risk investments are in strong demand, bond contracts may include fewer covenant protections, particularly accounting-related covenants (U.S. Securities and Exchange Commission (SEC) 2013). In thus study, we assess whether investors rationally trade off creditor protection provided by covenants for lower verification costs and easier trading. Examining this trade-off furthers our understanding of settings where it may be efficient to not base debt contracts on publicly disclosed accounting performance. That is, although accounting enriches the possible contracting space by allowing contract renegotiation to be conditioned upon periodic publicly reported performance, this may not always be optimal. Based upon the contract standardization driven liquidity theory of Ayotte and Bolton (2011), we observe the short-term effect of issuing high-yield cov-lite bonds on trading, turnover, and yields vis-à-vis the issuance of alternative high-yield bonds that are not cov-lite.[1]

[1]Our study focusses on high-yield bonds, which typically have incurrence covenants but not maintenance covenants. Maintenance covenants require the borrower to comply with one or more financial covenants during each reporting period. For example, maintaining a certain debt to equity ratio or interest coverage ratio. Incurrence covenants require compliance with one or more financial covenants only upon the occurrence of certain actions of the borrower such as a debt issuance, dividend payment, or an acquisition. In our setting, cov-lite high-yield bonds are contracts with only incurrence covenants that do not rely on accounting numbers for the incurrence tests. Our definition of cov-liteness differs from that of Becker and Ivashina (2016) for leveraged loans. They identify cov-liteness as loan contracts with incurrence provisions and non-cov-liteness as loan contracts with maintenance provisions.

We study high-yield public debt conrtracts for two reasons. First, the high-yield market provides a high-risk setting where creditor protection matters the most. The increase in high yield issues in recent times, particularly those with low covenant quality, has weaker investor protection (Smith 2017a, Scaggs 2017). Second, prior debt contracting literature only documents the cov-lite phenomenon in the leveraged loan market (Becker and Ivashina 2016; Berlin, Nini and Yu 2020; Billet, Elkamhi, Popov, and Pungaliya 2016; Ivashina and Vallee 2019; Prilmeier and Stulz 2019), thus little is known about cov-liteness in public debt markets where periodic accounting information is available. This lack of evidence contrasts with the growing frequency of cov-lite contracts in the high-yield market (Bahceli 2018; Mellow 2017; Santibanez 2014). For example, in June 2017 Moody's reported that high-yield cov-lite bonds represented a record 60% of single-month issuance and a record of 47% of these bonds included in Moody's covenant quality index (Scaggs 2017).

We focus on the high-yield market because of the differences between high-yield bonds and leveraged loans. Historically, debt markets were essentially dichotomised into public debt (bonds) versus private debt (loans), with each market having distinct governance structures. Bonds were issued by firms registered with the U.S. Securities and Exchange Commission (SEC) with an investment grade rating. Typically, bonds did not have maintenance covenants because close monitoring was not viewed as necessary for these liquid securities. In contrast, loans were illiquid, issued by private firms, and usually held by banks which monitored the borrower via accounting maintenance covenants written into the terms of the private debt contracts.[2] Previously, firms could only access the liquid bond market if they had a sufficiently good bond rating and were registered with the SEC, thus becoming subject to regular public reporting requirements. Because of the dramatic increase in securitized loan offerings, firms that do not qualify for an investment-grade rating can remain private and borrow through loans that resemble bonds i.e., loans that do not have maintenance covenants (referred to as cov-lite loans), Becker and Ivashina (2016), Berlin et al. (2020), and Prilmeier and Stulz (2019).[3] However, cov-lite leveraged loans do not provide a suitable setting for our research

[2] According to Prilmeier and Stulz (2019, p. 2), "the sharp distinctions between loans and bonds started to disappear in the 1980s and the disappearance has accelerated". We explain changes in debt markets in section 2. The principal factors responsible for the convergence were, on the one hand, the introduction of high-yield (junk) bonds and, on the other hand, securitization and trading of loans along with more recent historically low yields.

[3] De Fontenay (2014), p.744, explains that "The once-universal truth that loans come saddled with tight covenants and intensive creditor monitoring is also proving false, and syndication and secondary trading are again the culprits. While bank loans were always characterized by highly restrictive covenants, this feature could not peacefully coexist with funding by dispersed, unrelated creditors." Covenant-lite loans first appeared around 2005 and rapidly became popular in the leveraged loan market. Because financial covenants were a defining feature of bank loans for so long, covenant-lite loans were dismissed as a sign of lender excess in the pre-financial crisis period. Yet the market share of covenant-lite loans has continued to surge post-crisis, representing up to 35% of all leveraged loans outstanding in 2013 (De Fontenay 2014).

question, which relates to the effects of excluding accounting from covenants, because many loans are issued by private firms that do not publicly disclose financial reports. Our focus is on public firms regulated by the SEC which, by default, publish financial reports. Therefore, their decision about whether to have debt contracts that exclude accounting covenants is not influenced by the decision to remain private.

Despite similarities between leveraged loans and high-yield contracts, high-yield bonds remain riskier investments, which suggests that accounting covenants are potentially more important in providing protection to high-yield bond investors. There are several reasons that high-yield bonds are riskier than leveraged loans. First, bonds typically pay out fixed interest, whereas leveraged loans often offer floating-rate interest making leveraged loan investors not subject to interest rate risk. Second, leveraged loans tend to be secured by the company assets and are the first in line to be paid, whereas most bonds are unsecured and subordinate to leveraged loans (De Fontenay 2014). Third, loans are often based on relationship lending, which facilitates information flows about the borrower's financial situation. Finally, recovery rates upon default are substantially higher for leveraged loans than for high-yield bonds.[4] In section 2, we provide a schematic explanation of the evolution of covenant structures for leveraged loans and high-yield bonds.

Christensen et al. (2016, p.414) focus on the role of accounting information in financial contracting. They argue that incomplete contracting theory complements traditional agency theory in explaining accounting-based contracting. For instance, they argue that *"Accounting based covenants serve as a mechanism for allocating control rights between borrowers and lenders in an efficient manner, that is, in a manner that minimizes opportunistic behavior. Another important takeaway from the incomplete contracting framework is that covenants are valuable because they can be renegotiated. This gives a strategic meaning to the use of covenants in that they can be used to provide incentives and alleviate information problems, making them an integral part of a borrower's corporate governance."* However, as we explain below, this view of the contracting role of accounting has been challenged in recent years by the growing number of covenant light (cov-lite) contracts.

[4] Between 2013 and 2017, the average recovery rate for US first lien loans was 70% compared to only 40.8% for US senior unsecured bonds (Moody's, 2017).

Prior studies analysing cov-lite contracting (e.g., Becker and Ivashina 2016; Berlin et al. 2020; Ivashina and Vallee 2018) suggest that the cov-lite phenomenon is a feature exclusive to the leveraged loan market. They associate the rise in cov-lite leveraged loans to the growing participation of mutual funds, collaterized loan obligations, and other non-bank institutions in the leveraged loan market. The presence of these investors transformed the role of banks as diligent monitors and relationship lenders. When institutional investors own a substantial portion of corporate loans, they prefer to remove covenants based on periodically reported accounting numbers to avoid verification and enforcement costs (Billett et al. 2016). Consistent with this idea, Bozanic, Loumioti and Vasvari (2018) provide evidence that the standardization of loan covenants alleviates information-processing costs, which facilitates trading; and De Franco, Vasvari, Vyas, and Wittenberg-Moerman (2020) show that similarity in bond covenants' restrictiveness reduces information acquisition and processing costs, resulting in lower bond yields at issuance and greater bond market liquidity.[5] We extend this line of research by studying the effects of cov-lite contracting in the high-yield bond market, where contracts are typically riskier and "lighter" than in the syndicated loan market (Begley and Freedman 2004; Milbank 2014).

We find that cov-lite high-yield bonds have higher trading, higher turnover and lower yields in the 30 days and 90 days after issuance compared to other (non cov-lite) high-yield bonds. We interpret these findings as evidence of growing investor demand for risky debt investments with lower verification and enforcement costs. Institutional investors are now the predominant investors in the high-yield bond market, motivated by low interest rates and low corporate default rates, large cash holdings from record sales of structured investment vehicles (Stein 2013), and unmet demand for risky investments (Aneiro 2012; Kosnett 2014; Schwarzberg and Li 2018, Smith 2017a, Smith 2017b). These investors prefer lighter covenant structures that boost trading and avoid the costs of accounting verification and enforcement (Billett et al. 2016; De Franco et al. 2020). At the same time, supply of high-yield bonds reduced since the financial crisis, as some high yield issuers have upgraded to investment grade and others exchanged bonds for loans (Kosnett 2014; Smith 2017b). These demand and supply movements create competition among investors for cov-lite bonds, increasing their trading and prices, and thus lowering bond yields.

[5] Our study differs from De Franco et al. (2020) in at least two major respects: their sample period is 2000 through 2009, which predates the most recent increase in issuances of cov-lite high-yield bonds; and they consider a mix of investment grade and high-yield (speculative) bonds with a predominance of investment grade bonds (82%).

The rest of the paper is organized as follows. In Section 2 we provide a schematic explanation of the covenant structure of public bonds and private loans. Section 3 explains the demand for cov-lite contracts and develops our hypotheses. Section 4 describes the data and sample, section 5 presents the model and variables, and section 6 discusses descriptive results. The results of regression tests are reported in section 7. Section 8 concludes.

2. Changing Debt Markets

Historically, loans differed substantially from bonds. Loans were illiquid and held by banks which periodically monitored borrowers, whereas bonds were liquid and only reassessed if an incurrence event such as a merger and acquisition arose. Only the most credit worthy public (i.e., investment grade) companies would issue bonds (see for example De Fontenay 2014 for a detailed explanation of bonds versus loans).

(t_1)	Public BONDS	Private LOANS
	only investment grade, with incurrence covenants	by banks, with both incurrence and maintenance covenants

With the introduction of high-yield bonds in the 1980s:

(t_2)	Public BONDS		Private LOANS
	Investment grade, with incurrence covenants	High-yield, with both incurrence and maintenance covenants	with banks, with both incurrence and maintenance covenants

And the introduction of securitized leveraged loans:

(t_3)	Public BONDS		Private & Syndicated LOANS
	Investment grade, with incurrence covenants	High-yield, with both incurrence and maintenance covenants	with banks and institutional investors, with both incurrence and maintenance covenants

More recently, with the introduction of cov-lite bonds and cov-lite loans, the distinctions have changed again. Initially cov-lite high-yield bonds differed from other (regular) high-yield bonds by excluding maintenance covenants. Over time, maintenance covenants were also removed from other

high-yield bonds and at the same time, cov-lite high-yield bonds were issued with a reduced set of incurrence covenants. During our sample period, the principal distinction between cov-lite and other high-yield bonds is that the cov-lite bonds have fewer incurrence covenants, and the excluded covenants are typically accounting-related. At the end of Section 4, we detail how we operationalize this distinction in our empirical tests.

(t_4)	Public BONDS		Private & Syndicated LOANS	
	Investment grade, with incurrence covenants	Cov-lite high-yield, with a restricted set of incurrence covenants	with banks and institutional investors, **cov-lite** loans with only incurrence covenants	with banks and institutional investors, with both incurrence and maintenance covenants
		Other high-yield, with full set of incurrence covenants		

Our focus is on the high-yield bond market, where we compare trading, turnover, and yields of cov-lite high-yield bonds with those of other high-yield bonds.

3. The Demand for Cov-Lite Bonds and Development of Hypotheses

Before presenting our hypotheses, we review the literature that provides insights into why there has been a dramatic rise in cov-lite bond contracting. Ayotte and Bolton (2011) build a theory to explain that when good states are expected in the future with high probability, investors will rationally forego the use of contractual covenants that require verification of the borrower's situation if, in return, liquidity and simplicity are sufficiently enhanced. In the Ayotte and Bolton (2011) model, standardization of contracts enhances liquidity as long as these contracts provide sufficient information for investors to participate in the deal. The borrower has incentives to include contractual terms that generate screening costs. The standardization of contracts can reduce screening costs in two ways: (i) it becomes cheaper for the borrower to disclose certain (but not all) information about the borrower's condition; and (ii) it becomes easier for the investor to anticipate which claims other potential investors will be offered in exchange for carry-on funding. If the information reveals enough about the state of the borrower, the investor is willing to participate in the deal without further screening. However, if the investor's rational expectation is that the borrower will reveal only information that is favorable to the borrower, the investor will not be willing to trade and will demand additional reassurance (i.e., stronger covenant features).

Two possible solutions emerge. In the first, contracts become covenant-lite and trading increases because of reduced screening costs. In this respect, Bozanic et al. (2018) provide empirical evidence that collaterized loan obligations which are investments in a basket of high-yield loans rely on the simplification of covenants as a mechanism to lower ~~their~~ screening costs. They show that covenant simplification is associated with fewer covenants and higher loan turnover. Similarly, De Franco et al. (2020) show that the more similar the restrictiveness of bond covenants the lower the information acquisition and processing costs, leading to lower yields at issuance.

These studies stress the existence of a trade-off between the potential control benefits of tailored (restrictive) covenants and the reduced contracting costs associated with standardized (similar) covenant packages. Cov-lite contracts fail to limit excess borrowing and hence they are more likely when investors are more concerned about avoiding monitoring costs than about reducing agency costs of debt. This trade-off is more likely to occur when the probability of corporate default is low, borrowers' financing needs are high, and the depth of liquidity in the market is great. In these conditions, it is less costly to give up covenant enforcement in exchange for lower screening costs because investors can easily sell if the borrower's performance deteriorates. High-yield bondholders also have incentives to prefer cov-lite bonds because covenant enforcement would result in lower verification and coordination costs. Unlike private lenders, individual bondholders face a substantial collective action problem resulting from the lack of legal and financial incentives to enforce violations of covenants (Kahan and Rock 2009). If these screening and coordination arguments are correct, we expect higher flows towards cov-lite contracts to be reflected in higher trading and turnover:

H1a: High-yield bonds with cov-lite structures have greater trading volume/turnover relative to other high-yield bonds.

Alternatively, if the investor believes that all of the unobserved terms in the standardized contract are unfavorable to her, the trading occurs less frequently. Anticipating investors' beliefs, the borrower writes a contract with covenant features to signal high creditworthiness. In this case, investors are more concerned about restricting excessive borrowing if the borrower's performance deteriorates than about reducing verification costs. They particularly welcome covenants that limit additional borrowing and cash distributions to shareholders and third parties, and thus would prefer high-yield bonds that require accounting verification for these actions to occur. These accounting-based covenants would provide bondholders with assurance that management will not expropriate their

wealth in favor of shareholders after the debt issuance. In this scenario, we do not expect cov-lite contracts to have higher trading and turnover:

H1b: High-yield bonds with cov-lite structure do not have greater trading volume/turnover relative to other high-yield bonds.

Hypothesis 2 addresses the effect of cov-liteness on bond yields. Cov-liteness can potentially lead to higher yields for several reasons. The first is the rise in demand for risky assets by non-bank investors such as insurance companies. In good economic times, characterized by a low probability of corporate default and low interest rates, reaching for yield becomes more attractive (Becker and Ivashina 2015; Rajan 2005). Because reaching for yield is associated with higher risk-taking, investors may take on riskier (i.e., cov-lite) bonds. Second, an increase in yields may come from the supply side (i.e., borrowers offering an initial price discount). The decision about covenants is jointly determined with the pricing of the contract (Bradley and Roberts 2015). In making that decision, the borrower may trade off an increase in the cost of debt for the benefits of minimal financial restrictions. The borrower would then offer an initial discount to counterbalance the effect of cov-lite contracting. Further, more competition for funds among borrowers can force companies to lower their offering price to ensure the necessary funds.[6] If cov-lite provisions reflect borrowers' pricing decisions or investors reaching for yields, then:

H2a: Cov-lite high-yield bonds have higher yields than other high-yield bonds

However, recent evidence in Becker and Ivashina (2016) for leveraged loans offers an alternative explanation for the relation between cov-lite contracting and yields. They show that while cov-lite loan trading expanded, cov-lite loan yields declined, which is inconsistent with the reaching for yield argument. Declining yields in leveraged loans are associated with increased participation of institutional investors in high-risk debt markets and their preference for investments with low screening and creditor-coordination costs (Becker and Ivashina 2016; Ivashina and Sun 2011). Non-bank investors do not benefit from relationship rents that can partially compensate for the cost of verification and enforcing contract provisions (Billet et al. 2016). In this scenario, contract provisions that require accounting verification become inefficient (Bolton and Scharfstein 1996; Gertner and

[6] Borrower competition for funds reflects several factors. One is the large number of firms seeking refinancing of pre-crisis loans, including European firms entering U.S. bond markets where the economic recovery started earlier (Billington, Piscicelli and Boury, 2015). Another factor is borrowers trying to lock in the low interest rates that are reflected more quickly in public debt markets than in private deals.

Scharfstein 1991; Van den Steen 2010). In the bond market, De Franco et al. (2020) observe that the increase in demand for covenant similarity by insurance investors result in lower yields at issuance. The simplification of bond covenants allows these institutional investors to more quickly assess the risks of contracts due to fewer information-processing costs and more familiarity with contract terms.

Like the leveraged loan market, the high-yield bond market is now dominated by institutional investors. The increased demand by these investors for bonds at the high-risk corner of the market (cov-lite high-yield) is motivated by low interest rates in other markets, large cash holdings from sales of structured investment vehicles (Stein 2013), and unmet demand in the leveraged loan market (Aneiro 2012; Kosnett 2014; Schwarzberg and Li 2018, Smith 2017b). Moreover, institutional herding is strong particularly in the junk bond market, which further increases competition for high-yield bonds with light covenant structures (Cai, Song, and Li 2012). As explained by a Moody's Senior Covenant Officer: *"Amid historically low interest rates, investors have become more concerned about being shut out of a bond offering than about poor protections. As issuers continue to sell bonds with weak covenant structures, the market is seeing a 'race to the bottom' as underwriters compete for issuers' business"* (Friedman, 2015).

On the supply side, many borrowers left the high-yield market, some upgrading to investment grade and others looking for bond-to-loan refinancing amid low default rates (Kosnett 2014; Smith 2017b), resulting in less high-yield bond supply. These demand and supply movements create competition among investors and lower expected bond yields (Ivashina and Sun 2011). Because of this we can observe lower yields for cov-lite high-yield bonds vis-à-vis other high-yield bonds:

H2b: Yields of high-yield cov-lite bonds are lower than yields of other high-yield bonds

4. Data and sample description

To obtain our data set of U.S. high-yield bonds, we combine multiple sources of data from 2002 through 2014. Bond issuance data is from the Financial Industry Regulatory Authority (FINRA) through TRACE, Mergent FISD, and Xtract Research. More specifically, bond trading information such as volume, number of trades, and yield is obtained from TRACE. Bond characteristics such as offering amount, maturity, issue date, and maturity date are from Mergent. Treasury bond yields are from the U.S. Department of the Treasury. We merge each bond issue with the borrower's accounting

information from Compustat in the fiscal year immediately before the issuance date. We match with Compustat using available company identifiers, such as Cusip and Gvkey, and we manually match by borrower name when identifiers are not available. For each bond issue, we require non-missing information on issue date, issuing amount, and covenants. This process generates 2,484 high-yield bonds issued by 543 firms from 2002 through 2014.

High-yield cov-lite bonds are high-yield bonds issued by below investment grade borrowers, with covenant packages that lack most of the accounting-based incurrence covenants typically found in high-yield bonds. To identify the typical accounting-based incurrence covenants missing in high-yield cov-lite contracts, we use the Xtract classification of cov-lite contracts. Moody's uses a similar classification to assess covenant liteness.[7] Cov-lite bonds generally lack restrictions on issuing unsecured debt, dividend payments, asset sales, engaging in acquisitions and affiliate-related transactions, and the verification of accounting tests at issuance and at incurrence events.[8] For example, the merger and sale of assets covenant does not require the leverage incurrence test. We provide examples of cov-lite and non cov-lite issues in Appendix 1.

We combine data from Mergent and Xtract to identify the basket of covenants for each bond, and then identify whether or not each of the covenant provisions described above is in place. Specifically, we identify 12 types of covenants in Mergent that match the definitions of Xtract cov-lite contracts. We consider a bond as cov-lite if the contract lacks at 8 eight of these 12 covenants.[9]

5. Empirical models and variables

We use a cross-section of high-yield bonds to examine the short-term effects of cov-liteness on trading volume, turnover and yield spreads. We perform bond-level tests and firm-level tests for three

[7] According to Xtract (https://www.xtractresearch.com/pre/), the covenants that are commonly omitted in cov-lite high-yield bonds are: indebtedness, restricted payments, dividends restrictions, asset sales restrictions, restrictions on transactions with affiliates, no liens, no subordinated debt issues, no fixed charge coverage, no net earnings test issuance, no leverage test issuance, no net worth issuance, and merger restrictions. Moody's uses a similar assessment of covenant liteness. They consider the lack of key covenants, namely provisions for restricted payments, change of control, limitations on debt incurrence, negative pledges, and merger restrictions (Moody's 2020).

[8] Although the change of control covenant is designed to benefit high-yield bond investors, the "double trigger" provision in high-yield cov-lite bonds voids the put option unless the change of control is accompanied by a ratings downgrade, i.e., loosening the creditor's protection.

[9] In a subsequent analysis in section 7, we test alternative definitions of cov-lite contracts. Specifically, we use: (i) a more restrictive criterion by imposing that a cov-lite bond contract must omit at least 10 of the 12 cov-lite covenants identified by Xtract; and (ii) a continuous cov-lite variable equal to the natural logarithm of the number of cov-lite covenants missing in the contract. Our inferences do not change.

alternative dependent variables: *Trading volume*, *Turnover* and *Yield spread* calculated for each bond over a 30-day and a 90-day window following the bond issuance.

For the bond level tests, we regress the three alternative dependent variables for bond *j* at time *t* + 30 days (and time *t* + 90 days), where *t* is the issue date, on a cov-lite indicator. We control for a set of bond and market characteristics and include industry and year fixed effects. The model is as follows:

$$Volume/Turnover/Yield_{j,\,t+30/90days} = \beta_0 + \beta_1 COVLITE_{j,t} + \beta_k X_{j,t} + Year/IndustryFE + \varepsilon_{j,t} \qquad (1)$$

Trading volume is the natural log of the sum of daily trading volumes over 30 days, or 90 days, following the bond issuance date, divided by the issuance size. *Turnover* is the daily trading volume relative to the bond issuance size, averaged across 30 (90) days after the issuance day. *Yield spread* is the median daily yield over the 30 (90) days from the bond issuance date minus the maturity-matched Treasury bond yield. We use the natural log of the yield spread in all regressions.

We include bond-level and market-level control variables ($X_{j,t}$) widely used in the literature (e.g., Ball, Xi, and Shivakumar 2015; Bharath, Dahiya, Saunders, and Srinivasan 2011; Bharath, Sunder and Sunder 2008; Florou and Kosi 2015). In particular, we include *Maturity* defined as the bond's time to maturity in years, *Issuance* calculated as the natural log of the bond's par value, and the *Number of trades* calculated as the bond's average number of daily trades over 30 (90) days following the issuance date. For each bond, we also measure the sensitivity to stock and bond market conditions by regressing weekly bond returns on weekly returns on the CRSP value-weighted index and on the Barclays US bond index to obtain stock and bond betas, respectively.

We capture market-wide conditions with two measures: the Barclays US Corporate Bond Index (*Bond market index*), measured as the weekly average returns over 30 (90) days following the individual bond issuance date; and the Chicago Board Options Exchange Nasdaq Volatility Index (*CBOE VXN*), which reflects the overall market uncertainty and risk (referred to as the "fear gauge" of the market), calculated over 30 (90) days after bond issuance.

The bond-level model ignores borrower characteristics such as creditworthiness and financial performance that are likely to influence the decision to issue a cov-lite bond. Typically, firms with better credit quality are more likely to issue cov-lite contracts relatively to those with worse credit quality because investors are less concerned about contractual terms that impose discipline when there is less likelihood of borrower default. Hence, observed trading and yield effects may be driven by unobserved risk and other characteristics of the issuer. To address this concern, we employ an instrumental variable (IV) model where the first-stage equation estimates the determinants of cov-lite

choice and the second-stage equation regresses trading volume, turnover, and yield spreads on cov-lite and control variables. The model is as follows:

$$Volume/Turnover/Yield_{j,\,t+30/90days} = \beta_0 + \beta_1 COVLITE_{j,t} + \beta_k X_{j,t} + Year/Industry\ FE + \varepsilon_{j,t}$$
$$COVLITE_{j,t} = \gamma_0 + \gamma_k X_{j,t} + \gamma_L Z_{i,t} + Year/Industry\ FE + \mu_{j,t} \quad (2)$$

The set of $Z_{i,t}$ variables in the first-stage equation represents the incentives of firm *i* to issue high-yield bonds with a cov-lite structure. We use the following variables to account for firm risk and creditworthiness: market leverage (total debt to market value), stock return volatility (mean standard deviation of monthly returns calculated over the 12 months before issuance), issuer rating quality (issuer rating score ranging from 1 to 7 based on the S&P rating of the issuer, where a higher score indicates higher rating quality)[10], distance to default calculated using the KMV-Merton model, following Bharath and Shumway (2008). We add firm size (natural log of total assets), return on assets (earnings before interest and taxes to total assets), and the S&P index of stock returns (average monthly returns 12 months prior to the bond issuance) to control for overall market conditions. We also include year and industry fixed effects (based on five industry groups).[11]

6. Descriptive and univariate results

Table 1 presents summary statistics for bond and market characteristics (Panel A) and issuer characteristics (Panel B). The high-yield bonds in our sample are large with a mean (median) issuance amount of $510 ($361) million and an average maturity of close to nine years. The average trading volume during the first 30 (90) days after the bond issue date is around 20 (57) times the bond issuance amount, whereas the total trading volume in the first 30 (90) days from the issue is around $7.9 ($22.1) billion.[12] The average daily turnover is 1.97 (1.94) times the bond issuance size, whereas the average daily number of trades is 6.7 (5.9) over the 30 (90) days after the bond issuance. On average, the

[10] We convert the S&P credit rating system into the following scores: 1 for ratings below CCC+, 2 for ratings between B- and B+, 3 for ratings between BB- and BB+, 4 for ratings between BBB- and BBB+, 5 for ratings between A- and A+, 6 for ratings between AA- and AA+, and 7 for ratings above AA+.

[11] The five industry groups are as follows: industry 1 includes SIC codes 0 and 1 representing agriculture, mining and construction; industry 2 includes SIC codes 2, 3 and 4 representing manufacturing, transportation and communications; industry 3 is for SIC code 5 representing wholesale and retail trade; industry 4 includes SIC codes 6 and 7 representing finance and services; and industry 5 includes SIC codes 8 and 9 representing education and public administration.

[12] The average monthly trading volume for the whole TRACE sample is around $40 billion between 2005 and 2014.

sample firms have total assets worth $8.4 million, a return on assets of 1.5%, and a market leverage of 1.93.

Table 1 here

In Table 2, we compare high-yield cov-lite bonds with other high-yield bonds. Cov-lite bonds experience higher trading relative to non cov-lite bonds across a number of indicators. The average trading volume for cov-lite bonds is 25.6 (68.2) times the issuance size in the first 30 (90) days after the issuance date, whereas the corresponding figures for non cov-lite bonds are 18.3 (51.9) for the first 30 (90) days of trading. In the first 30 days of trading, high-yield cov-lite bonds have 11% more daily turnover than other high-yields bonds (2.1 for cov-lite and 1.9 for other high-yield), and have twice the average number of trades (10.1 for cov-lite and 5.1 for other high-yield). These differences are both economically and statistically significant.

Table 2 here

The results in Table 2 suggest lower average yield spreads for cov-lite bonds compared to other high-yield bonds. For the 30-days period, the mean yield spreads are 2.81 percent (281 basis points) for cov-lite high-yield bonds and 4.53 percent (453 basis points) for other high-yields. This lower yield spreads suggest that cov-liteness in the high-yield market is associated with investors' preference for instruments with low verification costs rather than with borrowers' pricing decisions. Cov-lite issues have a longer maturity (11 years compared to 8 years for other high-yield bonds), and their mean size is larger ($563 million compared to $486 million for other high-yield bonds). Although the evidence in Table 2 is consistent with enhanced trading and lower yields for high-yield cov-lite bonds, we are careful not to draw strong inferences from the univariate analyses because they do not control for differences in borrower and bond characteristics. With respect to the individual bond's sensitivities to the overall corporate bond and stock market conditions, we find that cov-lite high-yield bonds are significantly more sensitive to the conditions in the aggregate stock market (*Beta stock*) relative to other high-yield bonds but they are not more sensitive to conditions in the bond market (*Beta bond*). On average, cov-lite borrowers are larger, less profitable, and have a better long-term credit rating.

Figure 1 plots the issue amount (Panel A) and frequency (Panel B) of cov-lite bonds and other high-yield bonds, issued from 2005 through 2014 for our sample cases. The number of cov-lite bonds increased until the financial crisis, decreased in 2008, and increased again after the crisis. In monetary terms, the issued amount of cov-lite bonds surpassed the issue amount of other high-yield bonds in

almost all the sample years, particularly in 2009 where the debt value of cov-lite issues exceeded $700 million USD.

Figure 1 here

In Table 3 and Figure 2, we compare trading volume, turnover, and yield spread in the 30-day window after the issue of high-yield cov-lite bonds with that of other high-yield bonds, by year. The average trading volume in the first 30 days of trading is significantly greater for high-yield cov-lite bonds than for other high-yield bonds in every year (Figure 2, Panel A). Prior to 2007, the volume trends of the two groups are roughly comparable. From 2007 onward, the trends diverge. In 2008, the average trading volume in the first month after issuance increases sharply for cov-lite but declines for other bonds. The pattern reverses for bonds issued in 2009: the trading volume drops for cov-lite but rises for other bonds. In subsequent years, the trading volume of cov-lite bonds is more unstable than that of other bonds. The financial crisis had a strong effect on cov-lite bonds. The average turnover is similar for the two types of bonds in most years, except during the crisis years where turnover of cov-lite bonds jumped and reached a peak (Figure 2, Panel B). Cov-lite bonds have consistently lower yields than other bonds in all sample years and for the 30-day and 60-day windows (Figure 2, Panel C and Table 3). This evidence is in line with hypotheses 2a, that there is a preference for covenant simplicity by investors and borrowers resulting in higher trading and lower yields.

Table 3 here

Figure 2 here

Table 4 reports Pearson correlations. For simplicity, we report only bond variables measured in the 30-day window following bond issuance. The *cov-lite* indicator is positively correlated with *Trading volume* and *Turnover*, and negatively correlated with *Yield spread*. *Cov-lite* is also positively correlatedwith firm *Size* and bond *Maturity*, and negatively correlated with the *Issuer rating score.*

Table 4 here

7. Regression results

We use bond-level regression analysis to examine the cross-sectional association between cov-liteness and bond characteristics (trading volume, turnover, and yield). Table 5 presents results for the 30-day and 90-day window after the bond issuance date. In columns (1) and (4), we document a strong positive relation between COV-LITE and *trading volume*. The coefficient on *COV-LITE* is 0.22 with a t-statistic of 6.262 when *trading volume* is measured in the first 30 days after the issuance.

The result is economically significant and indicates that, relative to other high-yield bonds, the trading volume of cov-lite bonds is on average 25% higher.[13] Columns (2) and (5) report similar results for *Turnover*. The average daily turnover for cov-lite high-yield bonds over the first 30 days following issuance is 0.26 higher than that for other high-yield bonds. This result represents about 16% of the standard deviation of the 30-day bond turnover. Overall, the empirical findings in Table 5 support hypothesis H1a, that high-yield bonds with cov-lite features have greater trading volume and turnover than other high-yield bonds. The results suggest that cov-lite structures facilitate bond trading. Results in columns (3) and (6) show a strong and negative association between COV-LITE and the log *yield spread*, for both the 30-day and 90-day periods. A cov-lite high-yield bond has an average 30-day yield spread of about 50% lower than that of other high-yield bonds, which is an economically meaningful result.[14] These effects remain if we extend the window to 60 days after the bond issuance.[15] The lower yield of bonds with cov-lite features is consistent with hypothesis H2b and with findings in Becker and Ivashina (2016) and De Franco et al. (2020), suggesting that strong investor demand for risky assets with minimum verification and enforcement costs keeps yield down but increases trading.

Table 5 here

Regarding other bond characteristics, the results indicate that high-yield bonds with longer maturity have lower yield spreads but greater trading volume. Large issuances experience less trading and turnover, consistent with prior findings that large issuances are more illiquid (McGinty 2001). The number of trades of high-yield bonds is inversely related with trading volume and turnover. In other words, more trades do not imply more volume and turnover, particularly if trades are small in size (Bao, Pan and Wang 2011). We find that the bond's sensitivity to the bond market conditions, measured by beta stock, matters for trading and turnover, i.e., relatively riskier bonds have lower trading and turnover. Market uncertainty, captured by the CBOE volatility index, is negatively associated with bond trading and turnover, and positively associated with yield spreads.

Our next analysis, addresses the concern that unobserved borrower-specific characteristics may influence both the decision to issue a cov-lite bond and the market performance of the bond. The unobserved conditions are a potential source of endogeneity. If there are other issuer-level factors

[13] The average trading volume (the sum of daily trading volumes over 30 days divided by the issuance size) for other high-yield bonds is 18.31, and the average trading volume for cov-lite high-yield bonds would be $e^{(\ln(18.31)+0.22)}$ which is equal to 22.82. Thus, the trading volume is 25% higher ((22.82-18.31)/18.31) for the cov-lite sample.
[14] With the average 30-day yield spread for other high-yield bonds of 4.53, the corresponding figure for cov-lite sample would be 2.28 ($e^{(\ln(4.53)-0.69)}$).
[15] We also perform tests for one year after issuance and find similar results.

that explain both the issuance of cov-lite bonds and the market outcomes of the bond, then the regression coefficients presented in Table 5 may be biased. For example, a borrower with high credit quality may be more inclined to issue cov-lite bonds compared to one with low credit quality because investors are less concerned about contractual terms that impose discipline when the borrower's default is less likely. Hence, larger trading and turnover and lower yield spreads observed for cov-lite high-yield bonds may be the result of COV-LITE proxying for the higher credit quality of the bond issuer rather than indicating the incremental benefits of cov-lite contracting. To address this concern, we employ an instrumental variable (IV) approach and use several issuer characteristics to instrument for cov-liteness, including proxies for creditworthiness and risk. The practical disadvantage of this approach is the reduction in sample size due to the matching of bond and firm data.

Table 6 reports the results of the first-stage equation of model 2.[16] Larger, less profitable, and more leveraged borrowers issue more cov-lite high-yield bonds. Cov-lite contracts are also more likely when equity risk is high (stock return volatility) and when the company has a relatively good credit rating. The F-statistic for the joint significance of the coefficients on the instruments listed at the bottom of Table 6 is significant and above the recommended threshold of 10 to be considered reliable (Stock, Wright, and Yogo 2002).[17]

Table 6 here

In Table 7, we present the estimation results of the second-stage regression of market outcomes on COV-LITE. The key result is the significant increase in trading volume and turnover and the significant reduction in (log) yield spreads for cov-lite high-yield bonds relative to other high-yield bonds. These results are consistent for the 30-day and 90-day windows and confirm our hypotheses H1a and H2b.

Table 7 here

Compared to other high-yield bonds, cov-lite high-yield bonds experience 56% (33%) larger trading volume in the first 30 days (90 days), and 0.44 (0.43) points higher turnover in the first 30 days (90 days). These results are statistically and economically significant and even stronger than those

[16] Note that the first-stage equation estimating the likelihood of cov-lite issuance is the same for all three outcome variables in the second stage.

[17] Ideally, we would have liked to confirm whether demand for cov-lite decreases when certain institutional bond investors hold a greater share of the bonds, but we have no access to time-series information on bond holdings. As an alternative, we use the proportion of shares owned by equity institutional investors. Our results are virtually the same but our sample size is much smaller. We acknowledge that holdings of equity investors may not be a good proxy for holdings of bond investors.

reported for the OLS regression in Table 5. For example, the 30-day (90-day) turnover for cov-lite bonds represents 27% (28%) of its cross-sectional standard deviation. We also confirm our prior results that yield spreads are lower for cov-lite bonds compared with those of other high-yield bonds. The 30 days (90 days) yield spread is about 34% (30%) lower for cov-lite bonds relative to other high-yields.[18]

Our findings suggest that investors in risky bonds trade off investor protection provided by covenants for easier trading. A preference for lighter covenant structures, which reduce verification costs and enhance trading, is also observed in leveraged loans by Becker and Ivashina (2016) and in investment grade bonds by De Franco et al. (2020).[19] In the risky environment of high-yield bonds, waiving accounting terms to verify incurrence of events implies a potentially large protection deficiency.

To confirm our results, we conduct several additional analyses. In Table 8, we conduct our tests using a propensity score matched sample of firms. We match cov-lite issuers with other issuers with similar firm and market characteristics (size, return on assets, leverage, stock return volatility, issuer rating quality, distance to default, S&P stock returns).[20] The empirical results are similar to those presented in Table 7. We observe that cov-lite bonds have significantly higher trading and turnover and lower yield spreads than other high-yield bonds.

Table 8 here

Next, we repeat the tests using only the periods in which the likelihood of credit default is relatively low, i.e., excluding 2008, 2009 and 2010, which are not classified as low bond default years by S&P. Our empirical tests include year fixed effects, which should minimize time-specific events such as the financial crisis. However, it is possible that time fixed effects do not fully account for the high prevalence of credit defaults during the crisis years. Our findings (reported in Table 9, Panel A) do not change, suggesting that the peaks in cov-lite trading observed around the financial crisis (see figure 2) do not drive our results.

Table 9 here

[18] In untabulated regression results, we consider firms that issued both cov-lite and non cov-lite bonds during our sample period. We find no significant differences between these firms and firms that issue only one type of high-yield bonds.
[19] De Franco et al. (2020) analyze a sample of mixed US bonds where more than 80% are investment grade bonds.
[20] We conduct propensity score matching (PSM) using nearest neighbor with replacement and common support. The caliper distance is set to 0.25 standard deviations from the propensity score. We repeat the PSM with other specifications and obtain similar results.

Finally, we re-define our cov-lite variable as a continuous variable equal to the natural logarithm of the number of cov-lite covenants missing in the contract. This procedure avoids making assumptions about the number of missing covenants above which a contract is considered cov-lite. The results reported in Table 9, Panel B, confirm the results in Table 7.

8. Conclusion

In recent years, a growing number of high-yield bonds have been issued with a restricted set of incurrence covenants that were traditionally written on accounting variables. These cov-lite contracts show how public debt contract design needs to balance two conflicting forces – increasing covenants protection but, at the same time, impairing ease of trading. We observe the trading, turnover, and yield spreads of cov-lite high-yield bonds vis-à-vis other high-yield bonds during the short-window (30 days and 60 days) after bond issuance. We find that cov-lite bonds have higher trading and turnover and lower yields. Our findings suggest that strong demand for investments at the high-risk corner of the public debt market by investors that prefer contracts with minimum verification costs resulted in easier trading and kept bond yield expectations low.

Our study provides insights into the fundamental role of accounting as an efficient mechanism in public debt contracting design. We show that there are economic scenarios in which demand for using periodic accounting reporting for contracting is limited even in a risky environment. We provide empirical support for the hypothesis that when the probability of corporate default is low, bond investors are prepared to drop investor protection provided by covenants written on accounting in return for contractual simplicity because this results in greater ease of trading. Our findings enhance understanding of the limits of the usefulness of accounting for public debt (bond) contracting.

Appendix 1 - Examples of High-yield Bond Issues

Cov-lite high-yield (from Xtract Research)

Tesoro Corporation

In March 2014, Tesoro issued 5.125% Senior Unsecured Notes due 2024 (rating BB+/Ba2), which, in addition to the presence of upstream guarantees, contain a typical investment grade covenant package, including: a liens covenant that extends only to principal properties, no restriction on debt/equity of subsidiaries, and a change of control put but conditioned upon a rating's decline. While Tesoro has investment grade ratings on its secured bank debt, its issuer level/corporate family ratings are below investment grade (BB+/Ba1).

Forest Laboratories

Forest Labs issued two series of senior unsecured notes in January 2014, 4.375% Senior Unsecured Notes due 2019 and 4.875% Senior Unsecured Notes due 2021 (both rating BB+/Ba1), with the same covenant package. Each of these issues include an investment grade style covenant package including: lack of upstream guarantees, no dividend and payment restrictions, several significant exceptions to subsidiary indebtedness. The issuer level/corporate family ratings are BB+/Ba1.

KB Homes

KB Homes issued 4.75% Senior Unsecured Notes due 2019 in March 2014 (rating B/B2), which are supported by upstream guarantees but otherwise contain provisions expected to be found in an investment grade deal. Restrictions on secured debt, sale and leaseback, mergers, consolidations and transfers of substantially all of the assets are subject to a large number of important exceptions and limitations. There is no change of control put. Lack of restrictions on dividend payments, issuing, or repurchasing securities. The issuer level rating is B/B2 and it does not have any debt rated investment grade.

Other (non cov-lite) high-yield

AMC Networks

In December 2012, AMC Networks issued $600,000,000 principal amount of 4.75% senior notes due December 15, 2022 (rating BB-/B1). The notes have the usual high yield provisions, specifically limitations on indebtedness for both unsecured and secured debt, restricted payments, no permission of asset sales, restrictions on affiliate transactions, and contain a 101% change of control put.

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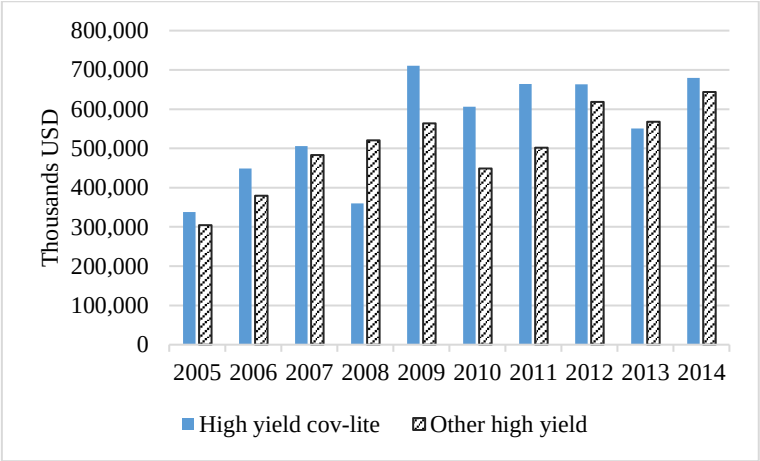
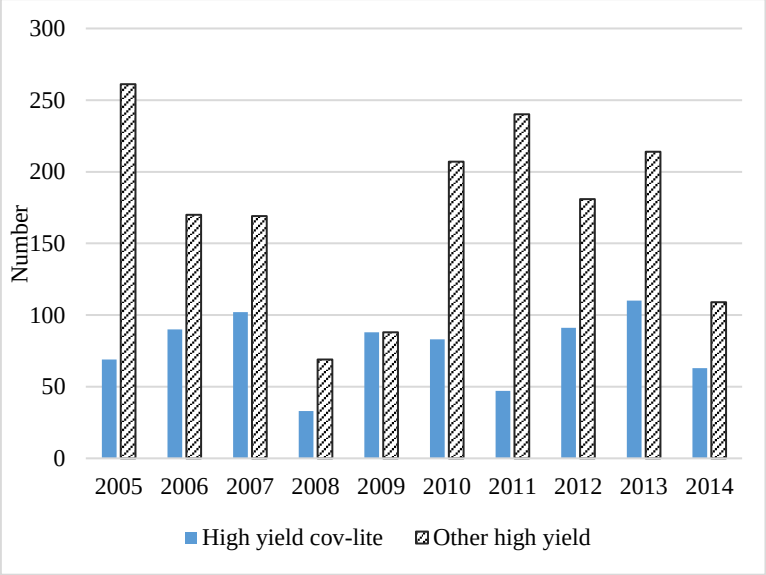
Figure 1

Issues of cov-lite high-yield bonds and other high-yield bonds

Panel A: Issue amount (thousand USD)



Panel B: Frequency of issues

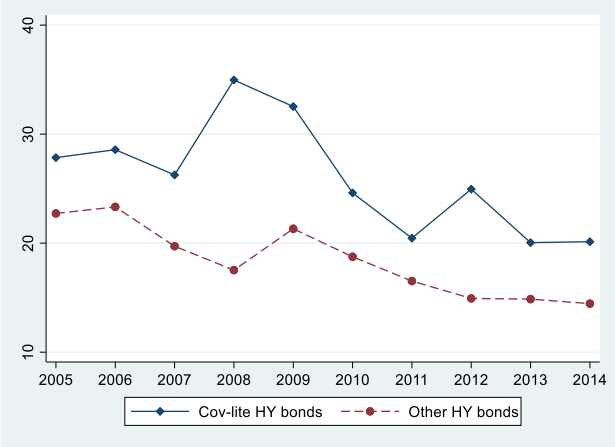


This figure plots the par value of debt issued (Panel A) and number of issues (Panel B) for cov-lite high-yield bonds and other high-yield bonds for our sample for periods between 2005 and 2014.

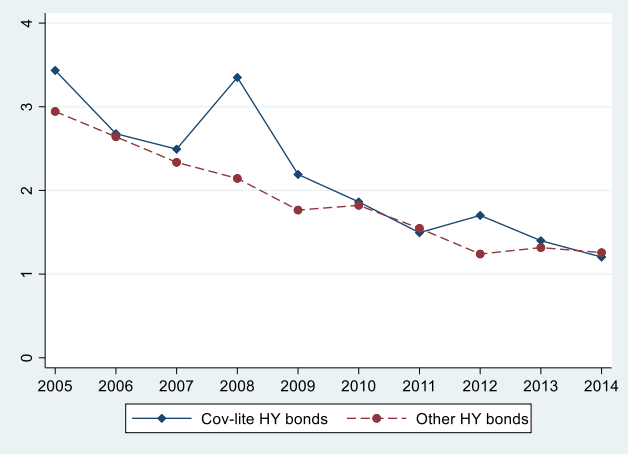
Figure 2

Trading, Turnover and Yield in the 30-day Window After Bond Issuance

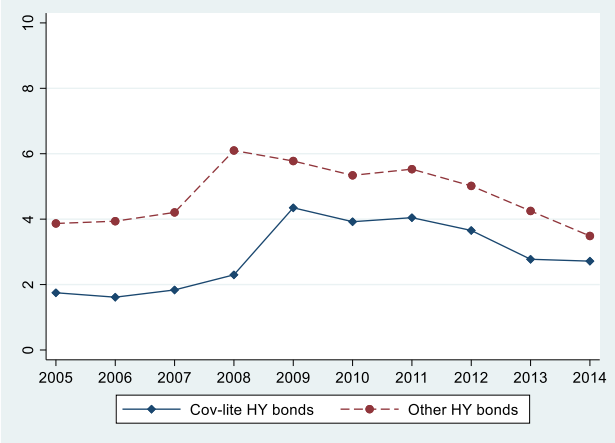
Panel A: Trading Volume 30 days after issuance



Panel B: Turnover 30 days after issuance



Panel C: Yield spread 30 days after issuance



This figure plots average *Trading volume* (Panel A), *Turnover* (Panel B) and *Yield spread* (Panel C) following the bond issuance date for high-yield cov-lite bonds and other high-yield bonds, issued between 2005 and 2014.

Table 1

Summary Statistics of Bond, Market and Firm Variables

This Table reports summary statistics for the pooled sample. Panel A reports statistics for bond and market variables. Panel B reports statistics for firm variables. *Total trading volume* is the sum of daily trading volumes over 30 and 90 days following the bond issuance date. *Trading volume* is the sum of daily trading volumes over 30 and 90 days following the bond issuance date divided by the issuance size. *Turnover* is the daily trading volume relative to the bond issuance size, averaged across 30 and 90 days from the day of the bond issuance. *Yield spread* is measured as the median daily yield over 30 (90) days from the bond issuance date minus maturity matched Treasury bond yield. *Maturity* is the bond's time to maturity in years. *Issuance amount* is the bond's par value of the amount issued. *Beta stock* and *Beta bond* are obtained by regressing weekly bond returns on weekly returns on the CRSP value-weighted index and on the Barclays US bond index. *Number of trades* is the bond's mean number of daily trades over 30 and 90 days following the issuance date. *Bond market index* is the weekly return on the Barclays US Corporate Bond Index averaged over 30 and 90 days following the individual bond issue date and *CBOE index* index is the Chicago Board Options Nasdaq Volatility Index captured from the pricing of the S&P 500 options index. *S&P500 stock index* is the stock returns of the S&P500 index calculated as the average monthly returns over 12 months prior to bond issuance. *Size* is the natural log of the firm's total assets. *Market leverage* is total debt to market value of the firm. ROA is EBIT to total assets. *Return volatility* is the mean standard deviation of monthly stock returns calculated over 12 months before bond issuance. *Issuer rating quality* is the firm rating score ranging from 1 to 7 based on S&P long-term rating of the issuer, where a higher score indicates higher rating quality. *Distance to default* is calculated using the KMV-Merton model (Bharath and Shumway 2008).

Panel A: Bond and market characteristics (N=2,484)	*Mean*	*Median*	*SD*
Bond characteristics			
Total trading volume in million USD (30 days)	7 927 065	7 402 500	5 081 663
Total trading volume in million USD (90 days)	22 100 000	21 300 000	11 900 000
Trading volume (30 days)	20.577	16.424	16.550
Trading volume (90 days)	57.020	48.104	47.376
Turnover (30 days)	1.975	1.487	1.601
Turnover (90 days)	1.943	1.512	1.508
Yield spread (30 days)	3.991	3.802	1.947
Yield spread (90 days)	4.004	3.822	1.970
Maturity (years)	8.736	7.714	4.988
Issuance (thousands USD)	510 083	361 277	469 087
Beta stock	0.289	0.240	1.201
Beta bond	0.386	0.047	26.151
Number of trades (30 days)	6.728	3.414	13.881
Number of trades (90 days)	5.994	3.413	10.603
Market characteristics			
Bond market index	104.488	104.424	3.161
CBOE Volatility	20.735	18.617	6.355
S&P stock returns	0.009	0.011	0.012

Panel B: Firm characteristics (N=800)	*Mean*	*Median*	*SD*
Size	7.725	7.773	1.208
ROA	0.015	0.025	0.074
Market leverage	1.930	1.161	3.573
Return volatility	0.128	0.107	0.086
Issuer rating quality	2.149	2.000	0.657
Distance to default	0.087	0.004	0.196

Table 2

Summary Statistics for high-yield cov-lite bonds and other high-yield bonds

This Table compares statistics for high-yield cov-lite bonds with other high-yield bonds. *Trading volume* is the sum of daily trading volumes over 30 and 90 days following the bond issuance date divided by the issuance size. *Turnover* is the daily trading volume relative to the bond issuance size, averaged across 30 and 90 days from the day of the bond issuance. *Yield* spread is measured as the median daily yield over 30 (90) days from the bond issuance date minus maturity matched Treasury bond yield. *Issuance amount* is the bond's par value of the amount issued. *Beta stock* and *Beta bond* are obtained by regressing weekly bond returns on weekly returns on the CRSP value-weighted index and on the Barclays US bond index. *Number of trades* is the bond's mean number of daily trades over 30 and 90 days following the issuance date. *Size* is the natural log of the firm's total assets. *ROA* is EBIT to total assets. *Market leverage* is total debt to market value of the firm. *Return volatility* is the mean standard deviation of monthly stock returns calculated over 12 months before bond issuance. *Issuer rating quality* is the firm rating score ranging from 1 to 7 based on S&P long-term rating of the issuer, where a higher score indicates higher rating quality. *Distance to default* is calculated using the KMV-Merton model (Bharath and Shumway 2008).

	Cov-lite high-yield bonds			Other high-yield bonds			Difference in means
	Mean	*Median*	*SD*	*Mean*	*Median*	*SD*	*p-value*
Bond characteristics							
Trading volume (30 days)	25.56	18.46	22.56	18.31	15.67	12.29	0.000
Trading volume (90 days)	68.23	54.08	72.15	51.93	45.98	28.60	0.000
Turnover (30 days)	2.10	1.43	1.88	1.92	1.51	1.45	0.011
Turnover (90 days)	2.04	1.45	1.79	1.90	1.52	1.36	0.036
Yield spread (30 days)	2.82	2.56	1.95	4.53	4.38	1.69	0.000
Yield spread (90 days)	2.80	2.59	2.01	4.50	4.36	1.69	0.000
Maturity (years)	10.83	9.00	8.07	7.78	7.60	1.92	0.000
Issuance amount (thousand USD)	563,179	387,831	584,639	485,960	350,000	403,766	0.000
Beta stock	0.38	0.25	1.29	0.25	0.23	1.16	0.008
Beta bond	-0.05	0.06	4.45	0.58	0.04	31.40	0.578
Number of trades (30 days)	10.13	4.58	20.95	5.18	3.00	8.56	0.000
Number of trades (90 days)	8.36	4.29	16.09	4.92	3.14	6.51	0.000
Firm characteristics							
Size	8.17	8.21	1.14	7.32	7.42	1.12	0.000
ROA	0.01	0.02	0.08	0.02	0.03	0.07	0.029
Market leverage	1.84	1.17	2.89	2.01	1.15	4.09	0.487
Return volatility	0.12	0.10	0.07	0.14	0.11	0.10	0.008
Issuer rating quality	2.24	2.00	0.79	2.06	2.00	0.49	0.000
Distance to default	0.10	0.00	0.21	0.08	0.00	0.19	0.188

Table 3

Trading volume, Turnover and Yield of High-Yield Bonds by Year

This table reports the number of bond issues and the mean values of *Trading volume, Turnover and Yield spreads* for high-yield cov-lite bonds and other higher yield bonds, by calendar year. *Trading volume* is the sum of daily trading volumes over 30 and 90 days following the bond issuance date divided by the issuance size. *Turnover* is the daily trading volume relative to the bond issuance size, averaged across 30 and 90 days from the day of the bond issuance. *Yield* spread is measured as the median daily yield over 30 and 90 days from the bond issuance date minus maturity matched Treasury bond yield.

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of bonds issued	*High-yield cov-lite*	69	90	102	33	88	83	47	91	110	63
	Other High-yield	261	170	169	69	88	207	240	181	214	109
Trading volume (30 days)	*High-yield cov-lite*	27.85	28.57	26.26	34.97	32.53	24.61	20.46	24.95	20.05	20.13
	Other High-yield	22.72	23.32	19.72	17.53	21.32	18.75	16.52	14.93	14.87	14.45
Trading volume (90 days)	*High-yield cov-lite*	84.01	79.00	70.16	77.87	81.92	62.91	50.03	58.40	54.93	50.59
	Other High-yield	68.66	65.63	56.94	51.94	58.39	52.12	43.90	40.24	40.51	41.27
Turnover (30 days)	*High-yield cov-lite*	3.43	2.68	2.49	3.35	2.19	1.86	1.50	1.70	1.40	1.20
	Other High-yield	2.94	2.64	2.34	2.14	1.77	1.82	1.55	1.24	1.32	1.26
Turnover (90 days)	*High-yield cov-lite*	3.31	2.59	2.59	3.23	2.15	1.72	1.43	1.62	1.43	1.08
	Other High-yield	2.99	2.69	2.29	2.11	1.78	1.80	1.49	1.19	1.24	1.26
Yield spread (30 days)	*High-yield cov-lite*	1.76	1.62	1.85	2.30	4.09	3.73	3.93	3.64	2.75	2.71
	Other High-yield	3.79	3.80	4.00	5.99	5.66	5.11	5.39	4.96	4.24	1.26
Yield spread (90 days)	*High-yield cov-lite*	1.85	1.57	1.89	2.72	4.03	3.61	4.07	3.51	2.74	2.68
	Other High-yield	3.86	3.87	4.34	6.05	5.49	5.00	5.48	4.82	4.16	3.44

Table 4

This Table reports Pearson correlations. *Cov-lite* is an indicator variable taking the value of one if the bond contract lacks the majority of accounting-based incurrence covenants, and 0 otherwise. *Trading volume* is the sum of daily trading volumes over 30 days following the bond issuance date divided by the issuance size. *Turnover* is the daily trading volume relative to the bond issuance size, averaged across 30 days from the day of the bond issuance. *Yield spread* is measured as the median daily yield over 30 days from the bond issuance date minus maturity matched Treasury bond yield. *Issuance amount* is the bond's par value of the amount issued. *Beta stock* and *Beta bond* are obtained by regressing weekly bond returns on weekly returns on the CRSP value-weighted index and on the Barclays US bond index. *Number of trades* is the bond's mean number of daily trades over 30 days following the issuance date. *Bond market index* is the weekly return on the Barclays US Corporate Bond Index averaged over 30 days following the individual bond issue date. *CBOE index* is the Chicago Board Options Nasdaq Volatility Index captured from the pricing of the S&P 500 index options. *Size* is the natural log of firm's total assets. *ROA* is EBIT to total assets. *Market leverage* is total debt to market value of the firm. *Return volatility* is the mean standard deviation of monthly returns calculated over 12 months before issuance. *Issuer rating quality* is a rating score ranging from 1 to 7 based on S&P long-term rating of the issuer, where a higher score indicates higher rating quality. *Distance to default* is calculated using the KMV-Merton model (Bharath and Shumway 2008). *S&P500 stock index* is the stock returns of the S&P500 index calculated as the average monthly returns over 12 months prior to bond issuance. Correlations are based on 800 observations. The symbol * denotes statistical significance at the 5% level.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)	COV-LITE	1								
(2)	Trading volume	0.245*	1							
(3)	Turnover	0.162*	0.668*	1						
(4)	Yield spread	-0.459*	-0.284*	-0.243*	1					
(5)	Maturity	0.298*	0.131*	0.156*	-0.426*	1				
(6)	Issuance amount	0.015	-0.450*	-0.726*	0.064	-0.013	1			
(7)	Beta stock	0.085*	0.069	0.080*	-0.050	-0.020	-0.058	1		
(8)	Beta bond	0.018	-0.028	-0.001	-0.095*	0.142*	0.021	-0.527*	1	
(9)	Number of trades	0.101*	-0.133*	-0.252*	0.101*	-0.040	0.309*	0.017	-0.004	1
(10)	Bond market index	-0.187*	-0.178*	-0.302*	0.386*	-0.241*	0.184*	0.017	-0.060	0.144*
(11)	CBOE index	0.006	0.053	0.048	0.341*	-0.062	-0.047	0.044	-0.042	-0.030
(12)	Size	0.350*	-0.110*	-0.325*	-0.328*	0.169*	0.541*	-0.091*	0.067	0.196*
(13)	ROA	-0.037	0.048	0.059	-0.263*	0.136*	-0.019	-0.077*	0.039	-0.133*
(14)	Market leverage	-0.025	-0.028	-0.008	0.236*	-0.063	0.017	0.088*	0.006	0.049
(15)	Return volatility	-0.094*	0.067	0.009	0.247*	-0.111*	-0.040	0.062	-0.080*	0.018
(16)	Issuer rating quality	0.136*	-0.034	-0.069	-0.098*	0.122*	0.096*	-0.203*	0.170*	-0.023
(17)	Distance to default	0.047	0.098*	0.146*	0.122*	-0.002	-0.101*	0.078*	0.023	0.009
(18)	S&P stock returns	-0.074*	-0.154*	-0.122*	-0.082*	-0.023	0.089*	-0.012	-0.016	0.008

		(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(10)	Bond market index	1								
(11)	CBOE index	0.050	1							
(12)	Size	-0.034	-0.122*	1						
(13)	ROA	0.014	-0.133*	0.228*	1					
(14)	Market leverage	0.020	0.073*	-0.323*	-0.338*	1				
(15)	Return volatility	0.150*	0.229*	-0.270*	-0.177*	0.143*	1			
(16)	Issuer rating quality	-0.001	-0.058	0.257*	0.122*	-0.116*	-0.190*	1		
(17)	Distance to default	-0.157*	0.195*	-0.182*	-0.260*	0.278*	0.228*	-0.102*	1	
(18)	S&P stock returns	0.191*	-0.481*	0.034	0.143*	-0.052	-0.022	-0.034	-0.322*	1

Table 5

Bond-Level Analysis: Trading volume, Turnover and Yield of Cov-lite High-yield Bonds

This table reports cross-sectional regressions of bond *Trading volume*, *Turnover* and *Yield spread* on a cov-lite indicator, and bond-level and market-level controls. *Trading volume* is the log of the sum of daily trading volumes over 30 (90) days following the bond issuance date divided by the issuance size. *Turnover* is the daily trading volume relative to the bond issuance size, averaged across 30 (90) days from the day of the bond issuance. *Yield spread* is the log of the yield spread measured as the median daily yield over 30 (90) days from the bond issuance date minus maturity matched Treasury bond yield. *Cov-lite* is an indicator variable taking the value of one if the bond contract lacks the majority of accounting-based incurrence covenants, and 0 otherwise. *Maturity* is the bond's time to maturity in years. *Issuance amount* is the bond's par value of the amount issued. *Beta stock* and *Beta bond* are obtained by regressing weekly bond returns on weekly returns on the CRSP value-weighted index and on the Barclays US bond index. *Number of trades* is the bond's mean number of daily trades over 30 and 90 days following the issuance date. *Bond market index* is the weekly return on the Barclays US Corporate Bond Index averaged over 30 and 90 days following the individual bond issue date. *CBOE index* is the Chicago Board Options Nasdaq Volatility Index captured from the pricing of the S&P 500 index options. All regressions include time (calendar year of bond issuance date) fixed effects. *T*-statistics clustered at the bond-level are reported in brackets. Symbols ***,**, and * indicate significance at the 1%, 5% and 10% levels, respectively.

	30 days after bond issuance			*90 days after bond issuance*		
	Trading volume (log)	**Turnover**	**Yield spread (log)**	**Trading volume (log)**	**Turnover**	**Yield spread (log)**
	(1)	(2)	(3)	(4)	(5)	(6)
COV-LITE	0.220***	0.256***	-0.685***	0.179***	0.230***	-0.808***
	(6.262)	(3.088)	(-17.574)	(6.975)	(2.926)	(-15.881)
Maturity	0.008**	0.009	-0.046***	0.004*	0.005	-0.059***
	(2.462)	(1.491)	(-5.504)	(1.719)	(0.877)	(-5.137)
Issuance	-0.368***	-1.542***	0.041	-0.355***	-1.542***	0.068
	(-10.370)	(-40.236)	(1.225)	(-9.744)	(-44.067)	(1.472)
Beta stock	0.043	0.083***	-0.033	0.025*	0.044*	-0.038
	(1.525)	(3.020)	(-1.264)	(1.824)	(1.753)	(-1.114)
Beta bond	-0.001**	-0.002***	0.000	-0.001***	-0.001***	0.000
	(-2.228)	(-3.668)	(0.806)	(-5.012)	(-2.719)	(0.474)
Bond market index	0.005	0.009	0.012	-0.004	0.016	0.027**
	(0.492)	(0.651)	(1.446)	(-0.177)	(1.327)	(2.239)
CBOE index	-0.009***	-0.006*	0.017***	-0.010***	-0.009***	0.022***
	(-3.690)	(-1.719)	(6.643)	(-3.504)	(-2.890)	(5.593)
Number trades	-0.009***	-0.002	0.005***	-0.014***	-0.002	0.007***
	(-4.603)	(-0.481)	(5.624)	(-3.962)	(-0.441)	(4.525)
Constant	6.366***	21.150***	-1.375	7.878***	20.594***	-3.856**
	(5.499)	(13.425)	(-1.217)	(3.858)	(14.972)	(-2.181)
Observations	2484	2484	2484	2484	2484	2484
Adj.R-squared	0.215	0.554	0.410	0.292	0.634	0.386
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 6

Firm-Level Analysis: The determinants of Issuing Cov-Lite Bonds

This table reports results for the first stage equation of the determinants of firms issuing high-yield cov-lite bonds. *Cov-lite* is an indicator variable taking the value of one if the bond contract lacks the majority of accounting-based incurrence covenants, and 0 otherwise. *Maturity* is the bond's time to maturity in years. *Issuance amount* is the bond's par value of the amount issued. *Beta stock* and *Beta bond* are obtained by regressing weekly bond returns on weekly returns on the CRSP value-weighted index and on the Barclays US bond index. *Number of trades* is the bond's mean number of daily trades over 30 and 90 days following the issuance date. *Bond market index* is the weekly return on the Barclays US Corporate Bond Index averaged over 30 and 90 days following the individual bond issue date. *CBOE index* is the Chicago Board Options Nasdaq Volatility Index captured from the pricing of the S&P 500 index options. *Size* is the natural log of firm's total assets. *ROA* is EBIT to total assets. *Market leverage* is total debt to market value of the firm. *Return volatility* is the mean standard deviation of monthly returns calculated over 12 months before issuance. *Issuer rating quality* is a rating score ranging from 1 to 7 based on S&P long-term rating of the issuer, where a higher score indicates higher rating quality. *Distance to default* is calculated using the KMV-Merton model (Bharath and Shumway 2008). *S&P500 stock index* is the stock returns of the S&P500 index calculated as the average monthly returns over 12 months prior to bond issuance. Robust t-statistics are reported in parenthesis. Symbols ***,**, and * indicate significance at the 1%, 5% and 10% levels, respectively.

	30 days after bond issuance	*90 days after bond issuance*
Maturity	0.017***	0.017***
	(6.011)	(6.329)
Issuance amount	-0.225***	-0.228***
	(-7.100)	(-7.254)
Beta stock	0.040***	0.041***
	(2.717)	(2.788)
Beta bond	0.001	0.000
	(0.194)	(0.067)
Bond market index	0.003	0.015
	(0.257)	(1.037)
CBOE index	0.004	0.008*
	(0.936)	(1.664)
Number of trades	0.003**	0.003**
	(2.495)	(2.100)
Size	0.220***	0.226***
	(12.047)	(12.607)
ROA	-0.833***	-0.786***
	(-3.587)	(-3.648)
Market leverage	0.011**	0.011**
	(2.243)	(2.303)
Return volatility	0.418*	0.467**
	(1.886)	(2.136)
Issuer rating quality	0.053**	0.051**
	(2.111)	(2.061)
Distance to default	0.121	0.113
	(1.284)	(1.239)
S&P stock returns	-0.135	-0.892
	(-0.060)	(-0.417)
Constant	1.077	-0.414
	(0.760)	(-0.272)
Observations	800	800
Adj.R-squared	0.301	0.307
F-test	11.45***	12.04***
Year & industry FE	Yes	Yes

Table 7

Firm-Level Analysis: Trading volume, Turnover and Yield of Cov-Lite Bonds

This table reports results for the second stage of an instrumental variables model of bond *Trading volume*, *Turnover* and *Yield spread* on a cov-lite indicator and controls. *Trading volume*, *Turnover* and *Yield spread* are measured over 30 days (columns 1-3) or 90 days (columns 4-6) following the bond issuance date. *Trading volume* is the log of the sum of daily trading volumes over 30 (90) days following the bond issuance date divided by the issuance size. *Turnover* is the daily trading volume relative to the bond issuance size, averaged across 30 (90) days from the day of the bond issuance. *Yield spread* is the log of yield spread measured as the median daily yield over 30 (90) days from the bond issuance date minus maturity matched Treasury bond yield. *Cov-lite* is an indicator variable taking the value of one if the bond contract lacks the majority of accounting-based incurrence covenants, and 0 otherwise *Maturity* is the bond's time to maturity in years. *Issuance amount* is the bond's par value of the amount issued. *Beta stock* and *Beta bond* are obtained by regressing weekly bond returns on weekly returns on the CRSP value-weighted index and on the Barclays US bond index. *Bond market index* is the weekly return on the Barclays US Corporate Bond Index averaged over 30 and 90 days following the individual bond issue date. *CBOE* is the Chicago Board Options Nasdaq Volatility Index captured from the pricing of the S&P 500 index options. *Number of trades* is the bond's mean number of daily trades over 30 and 90 days following the issuance date. Robust t-statistics are reported in parenthesis. Symbols ***,**, and * indicate significance at the 1%, 5% and 10% levels, respectively.

	30 days after bond issuance			*90 days after bond issuance*		
	Trading volume (log)	**Turnover**	**Yield spread (log)**	**Trading volume (log)**	**Turnover**	**Yield spread (log)**
	(1)	(2)	(3)	(4)	(5)	(6)
COV-LITE	0.445***	0.441**	-0.422***	0.285***	0.410**	-0.360**
	(3.314)	(2.273)	(-3.175)	(2.702)	(2.519)	(-2.088)
Maturity	0.006	0.018**	-0.056***	0.002	0.012*	-0.079***
	(1.058)	(2.307)	(-10.381)	(0.509)	(1.752)	(-11.040)
Issuance amount	-0.431***	-1.777***	0.099**	-0.401***	-1.735***	0.156***
	(-9.528)	(-27.162)	(2.207)	(-10.999)	(-31.074)	(2.640)
Beta stock	0.015	0.052	-0.089***	0.051**	0.070**	-0.104***
	(0.582)	(1.397)	(-3.494)	(2.452)	(2.219)	(-3.103)
Beta bond	-0.001	0.005	-0.020*	0.012	0.017	-0.024*
	(-0.119)	(0.351)	(-1.950)	(1.469)	(1.316)	(-1.732)
Number of trades	-0.013	-0.006	0.023	-0.055***	-0.003	0.023
	(-0.620)	(-0.202)	(1.061)	(-2.763)	(-0.113)	(0.820)
Bond market index	-0.011	-0.010	0.028***	-0.012*	-0.015	0.040***
	(-1.587)	(-0.973)	(4.008)	(-1.800)	(-1.471)	(3.855)
CBOE index	-0.005**	-0.004	0.001	-0.005**	-0.003	-0.000
	(-2.461)	(-1.301)	(0.380)	(-2.530)	(-1.065)	(-0.106)
Constant	9.800***	25.076***	-4.513*	14.946***	24.192***	-3.930
	(4.214)	(7.463)	(-1.849)	(6.969)	(8.536)	(-1.268)
Observations	800	800	800	800	800	800
Adj.R-squared	0.314	0.598	0.470	0.388	0.664	0.431
Time & ind. FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 8

Firm-Level Analysis for Propensity Score Matched Firms

This table reports results for the regression model of bond *Trading volume*, *Turnover* and *Yield spread* on a cov-lite variable and controls, using a propensity score matched sample of cov-lite and non cov-lite firms. *Trading volume*, *Turnover* and *Yield spread* are measured over 30 days (columns 1-3) or 90 days (columns 4-6) following the bond issuance date. *Trading volume* is the log of the sum of daily trading volumes over 30 (90) days following the bond issuance date divided by the issuance size. *Turnover* is the daily trading volume relative to the bond issuance size, averaged across 30 (90) days from the day of the bond issuance. *Yield spread* is the log of yield spread measured as the median daily yield over 30 (90) days from the bond issuance date minus maturity matched Treasury bond yield. In Panel A, *Cov-lite* is an indicator variable taking the value of one if the bond contract lacks the majority of accounting-based incurrence covenants, and 0 otherwise. In Panel B, *Cov-lite* is a continuous variable equal to the natural logarithm of the number of cov-lite related covenants missing in the contract. Control variables include the following. *Maturity* is the bond's time to maturity in years. *Issuance amount* is the bond's par value of the amount issued. *Beta stock* and *Beta bond* are obtained by regressing weekly bond returns on weekly returns on the CRSP value-weighted index and on the Barclays US bond index. *Bond market index* is the weekly return on the Barclays US Corporate Bond Index averaged over 30 and 90 days following the individual bond issue date. *CBOE* is the Chicago Board Options Nasdaq Volatility Index captured from the pricing of the S&P 500 index options. *Number of trades* is the bond's mean number of daily trades over 30 and 90 days following the issuance date. Time and industry fixed effects are included. Robust t-statistics are reported in parenthesis. Symbols ***,**, and * indicate significance at the 1%, 5% and 10% levels, respectively.

	Trading volume (log)	**Turnover**	**Yield spread (log)**	**Trading volume (log)**	**Turnover**	**Yield spread (log)**
	(1)	(2)	(3)	(4)	(5)	(6)
COV-LITE	0.274***	0.417***	-0.692***	0.175***	0.335***	-0.840***
	(7.960)	(4.959)	(-7.316)	(4.403)	(3.557)	(-6.309)
Maturity	0.009	0.019	-0.051***	0.004	0.013	-0.068***
	(1.727)	(1.670)	(-5.505)	(1.026)	(1.243)	(-5.817)
Issuance	-0.431***	-1.777***	0.099*	-0.416***	-1.735***	0.160**
	(-9.671)	(-11.292)	(1.797)	(-12.638)	(-10.791)	(2.376)
Beta stock	0.021	0.053	-0.079	0.050*	0.073*	-0.089
	(0.846)	(1.084)	(-1.435)	(1.992)	(1.866)	(-1.173)
Beta bond	-0.000	0.005	-0.019*	0.012	0.017	-0.022*
	(-0.058)	(0.215)	(-1.786)	(1.236)	(0.804)	(-1.845)
Bond market index	-0.016	-0.007	0.019	-0.059	-0.009	0.040
	(-0.385)	(-0.257)	(0.768)	(-1.483)	(-0.338)	(0.997)
CBOE	-0.011	-0.010	0.029***	-0.007	-0.013	0.042***
	(-1.096)	(-1.118)	(3.067)	(-1.174)	(-1.714)	(3.540)
Number trades	-0.004*	-0.004	0.002	-0.005***	-0.003	0.002
	(-1.791)	(-1.112)	(1.211)	(-3.101)	(-0.826)	(0.544)
Constant	8.763*	25.782***	-4.079	13.186***	25.789***	-8.005*
	(2.137)	(6.464)	(-1.573)	(3.134)	(6.482)	(-2.043)
Observations	800	800	800	800	800	800
Adj.R-squared	0.322	0.586	0.470	0.364	0.655	0.446
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 9

Additional analysis

This table reports results for the second stage of an instrumental variables model of bond *Trading volume*, *Turnover* and *Yield spread* on a cov-lite variable and controls. *Trading volume*, *Turnover* and *Yield spread* are measured over 30 days (columns 1-3) or 90 days (columns 4-6) following the bond issuance date. *Trading volume* is the sum of daily trading volumes over 30 (90) days following the bond issuance date divided by the issuance size. *Turnover* is the daily trading volume relative to the bond issuance size, averaged across 30 (90) days from the day of the bond issuance. *Yield spread* is the log of yield spread measured as the median daily yield over 30 (90) days from the bond issuance date minus maturity matched Treasury bond yield. In Panel A, *Cov-lite* is an indicator variable taking the value of one if the bond contract lacks the majority of accounting-based incurrence covenants, and 0 otherwise. In Panel B, *Cov-lite* is a continuous variable equal to the natural logarithm of the number of cov-lite related covenants missing in the contract. Control variables include the following. *Maturity* is the bond's time to maturity in years. *Issuance amount* is the bond's par value of the amount issued. *Beta stock* and *Beta bond* are obtained by regressing weekly bond returns on weekly returns on the CRSP value-weighted index and on the Barclays US bond index. *Bond market index* is the weekly return on the Barclays US Corporate Bond Index averaged over 30 and 90 days following the individual bond issue date. *CBOE* is the Chicago Board Options Nasdaq Volatility Index captured from the pricing of the S&P 500 index options. *Number of trades* is the bond's mean number of daily trades over 30 and 90 days following the issuance date. Time and industry fixed effects are included. Robust t-statistics are reported in parenthesis. Symbols ***,**, and * indicate significance at the 1%, 5% and 10% levels, respectively.

	30 days after bond issuance			*90 days after bond issuance*		
	Trading volume (log)	**Turnover**	**Yield spread (log)**	**Trading volume (log)**	**Turnover**	**Yield spread (log)**
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Excluding the financial crisis period						
COV-LITE	0.476***	0.416**	-0.547***	0.336***	0.409***	-0.543***
	(3.492)	(2.338)	(-4.453)	(3.062)	(2.752)	(-3.507)
Obs. = 678						
Panel B: Cov-lite as continuous variable						
COV-LITE	0.831***	0.820**	-0.758***	0.544***	0.779***	-0.653***
	(3.394)	(2.317)	(-3.138)	(2.782)	(2.607)	(-2.075)
Obs.= 800						